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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,917	12/21/2001	Joachim Arlt	PR-39	7062

7590

04/30/2003

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EXAMINER

DOUGHERTY, THOMAS M

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 04/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/026,917

Applicant(s)

ARLT ET AL.

Examiner

Thomas M. Dougherty

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-9, 11, 12, 14 and 15 is/are rejected.
- 7) ☒ Claim(s) 5, 10, 13 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1, 6, 7, 9, 11 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Hwang et al. (US 6,238,160). Hwang et al. show (e.g. fig. 2) a method of manipulating semiconductor substrates comprising placing a semiconductor substrate (26) on a transportable electrostatic carrier (38), and keeping the semiconductor substrate (26) placed on the electrostatic carrier (38) for the duration of and between at least two processing steps (backside cooling and any of CVD, sputtering, etching, etc., see col. 5, ll. 39-61) of the semiconductor substrate (26).

The method comprises electrically charging and/or discharging the transportable electrostatic carrier separately in one or more mobile or stationary transfer stations. Note that any such carrier will have to be charged while it is still or moving, there are simply no other alternatives.

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The method further comprising recharging or discharging the electrostatic carrier in a charging station of a processing machine. See the discussion particularly at col. 2, ll. 25-42 in which it is noted that a second electrostatic force is removed after processing in a chamber then the wafer is moved, i.e. transported.

The transportable electrostatic carrier is used in a unipolar (fig. 2) or bipolar (fig. 5) electrostatic system. See also col. 1, ll. 49-53.

Hwang et al. show (fig. 2) an electrostatic carrier system for manipulating semiconductor substrates, the system comprising at least one transportable electrostatic carrier (38) for a semiconductor substrate (26) and at least one transfer station for transferring the transportable electrostatic carrier (38) with the semiconductor substrate (26) placed thereon between processing steps. See col. 2, ll. 24-42.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang et al. (US 6,238,160) in view of O'Mara et al. (US 6,444,033). Given the invention of Hwang et al. as noted above, the thickness of their transportable electrostatic carrier is not known. O'Mara et al. show (fig. 8) a transportable electrostatic carrier (304) that has a thickness of 0.3 - 2.5mm. O'Mara et al. do not note that their component is explicitly used to process semiconductor substrates.

It would have been obvious to one having ordinary skill in the art to have an electrostatic carrier in the device of Hwang et al. of a thickness on the order of that taught by O'Mara et al. at the time the Hwang et al. invention was made since this thickness allows for a flexible carrier, thus making it less likely to chip or break due to rigidity stresses.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang et al. (US 6,238,160) in view of Wytman et al. (US 6,354,791). Given the invention of Hwang et al. as noted above, they do not show their electrostatic carrier being arranged so that it is inductively charged and discharged without contact.

Wytman et al. show (e.g. fig. 2) a method of manipulating semiconductor substrates comprising placing a semiconductor substrate (W) on a transportable electrostatic carrier (16) and keeping the semiconductor substrate (W) placed on the electrostatic carrier (16) for at least some duration. They further note that their electrostatic carrier (16) is arranged so that it is inductively charged and discharged without contact. See column 1, lines 62-63. It is not clear that the semiconductor substrate is held for at least two processing steps.

It would have been obvious to one having ordinary skill in the art to have an electrostatic carrier in the device of Hwang et al. of which is inductively charged and discharged without contact as is shown by Wytman et al. at the time the Hwang et al. invention was made since this the ability to do so is known in the art, thus its use involves no inventive step and since no soldering, brazing etc. is required to connect a

power supply to the carrier for charging/discharging purposes, thus no exposed wire is associated with the movable carrier.

Claim 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang et al. (US 6,238,160) in view of Morita et al. (US 5,815,366). Given the invention of Hwang et al. as noted above, they do not show their transportable electrostatic carrier including an integrated electrical charging and/or discharging device, comprising supplying the charging and/or discharging device by a battery or an accumulator.

Morita et al. show (e.g. fig. 2) a method of the an electrostatic carrier (11) including an integrated electrical charging and/or discharging device, comprising supplying the charging and/or discharging device by a battery (27) or an accumulator. It is not clear that the semiconductor substrate is held for at least two processing steps or that the electrostatic carrier is transporting device.

It would have been obvious to one having ordinary skill in the art to have the transportable electrostatic carrier or Hwang et al. to include an integrated electrical charging and/or discharging device, comprising supplying the charging and/or discharging device by a battery or an accumulator at the time of their invention since the ability to do so is known in the art, thus its use involves no inventive step and since use of batteries provides the ability to provide for different voltage levels in applications.

Claim 8 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang et al. (US 6,238,160) in view of Brown (US 5,948,986). Given the invention of

Hwang et al. as noted above, they do not note monitoring and/or controlling the steps of securing and/or separating the wafer from the electrostatic carrier by means of position sensors.

Brown shows (fig. 1) a method of manipulating semiconductor substrates comprising placing a semiconductor substrate (6) on an electrostatic carrier (2). Brown notes monitoring (46) and/or controlling the steps of securing and/or separating the wafer from the electrostatic carrier by means of position sensors (see abstract). Note that his monitoring unit is connected to his power supply control system, thereby the unit clearly controls the steps cited above.

Brown doesn't note the number of processing steps he intends to be performed on the semiconductor substrate (6) while it is on the carrier.

It would have been obvious to one having ordinary skill in the art to have monitoring and/or controlling the steps of securing and/or separating the wafer from the electrostatic carrier by means of position sensors in the device of Hwang et al. such as is taught by Brown in order to assure correct positioning of a wafer so that processing is successfully achieved. See Brown's col. 8, ll. 13-17.

Allowable Subject Matter

Claims 5, 10, 13 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to show or fairly suggest a method of controlling a battery or

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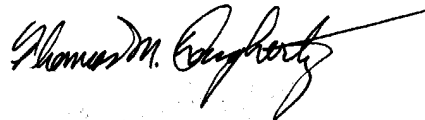
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accumulator powered transportable electrostatic carrier for electrostatically charging and/or electrostatically discharging by remote control. The prior art fails to show or fairly suggest labeling an electrostatic carrier with an electronic label for facilitating sorting and following a production sequence of individual semiconductor substrates.

 Direct inquiry concerning this action to Examiner Dougherty at (703) 308-1628.

April 28, 2003


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